



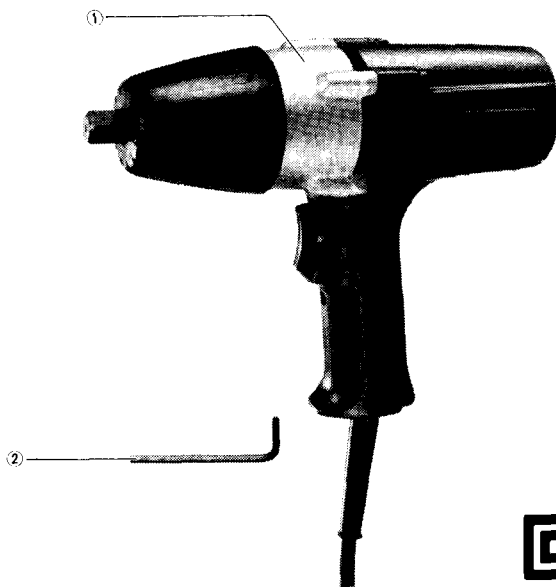
アメリカ

Impact Wrench

12.7 mm (1/2") MODEL 6905B

INSTRUCTION MANUAL

Impact Wrench & Standard Equipment



- ① Tool body
② Hex. wrench



Specifications

Capacities		Continuous rating (Input)	Impacts per minute	No load speed	Tightening torque	Overall length	Net weight	Power supply cord
Bolt size	Square drive							
12 mm (1/2")	12.7 mm (1/2")	440 W	2,000	1,700 R/min.	3,000 kg·cm (217 lbs·ft.)	270 mm (10-1/4")	2.7 kg (6 lbs)	2.5 m (8.2 ft.)
20 mm (3/4")								

- Manufacturer reserves the right to change specifications of parts and accessories without notice.
- Note: Specifications of parts and accessories may vary from country to country.

IMPORTANT SAFETY INSTRUCTIONS

(For All Tools)

WARNING: WHEN USING ELECTRIC TOOLS, BASIC SAFETY PRECAUTIONS SHOULD ALWAYS BE FOLLOWED TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, AND PERSONAL INJURY, INCLUDING THE FOLLOWING:

READ ALL INSTRUCTIONS.

1. **KEEP WORK AREA CLEAN.** Cluttered areas and benches invite injuries.
2. **CONSIDER WORK AREA ENVIRONMENT.** Don't use power tools in damp or wet locations. Keep work area well lit. Don't expose power tools to rain. Don't use tool in presence of flammable liquids or gases.
3. **KEEP CHILDREN AWAY.** All visitors should be kept away from work area. Don't let visitors contact tool or extension cord.
4. **STORE IDLE TOOLS.** When not in use, tools should be stored in dry, and high or locked-up place — out of reach of children.
5. **DON'T FORCE TOOL.** It will do the job better and safer at the rate for which it was intended.
6. **USE RIGHT TOOL.** Don't force small tool or attachment to do the job of a heavy-duty tool. Don't use tool for purpose not intended; for example, don't use circular saw for cutting tree limbs or logs.
7. **DRESS PROPERLY.** Don't wear loose clothing or jewelry. They can be caught in moving parts. Rubber gloves and non-skid footwear are recommended when working outdoors. Wear protective hair covering to contain long hair.
8. **USE SAFETY GLASSES.** Also use face or dust mask if cutting operation is dusty.
9. **DON'T ABUSE CORD.** Never carry tool by cord or yank it to disconnect from receptacle. Keep cord from heat, oil, and sharp edges.
10. **SECURE WORK.** Use clamps or a vise to hold work. It's safer than using your hand and it frees both hands to operate tool.
11. **DON'T OVERREACH.** Keep proper footing and balance at all times.
12. **MAINTAIN TOOLS WITH CARE.** Keep tools sharp and clean for better and safer performance. Follow instructions for lubricating and changing accessories. Inspect tool cords periodically and if damaged, have repaired by authorized service facility. Inspect extension cords periodically and replace if damaged. Keep handles dry, clean, and free from oil and grease.
13. **DISCONNECT TOOLS.** When not in use, before servicing, and when changing accessories, such as blades, bits, cutters.

14. **REMOVE ADJUSTING KEYS AND WRENCHES.** Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it on.
15. **AVOID UNINTENTIONAL STARTING.** Don't carry tool with finger on switch. Be sure switch is OFF when plugging in.
16. **EXTENSION CORDS.** Make sure your extension cord is in good condition. When using an extension cord, be sure to use one heavy enough to carry the current your product will draw. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating. Table 1 shows the correct size to use depending on cord length and nameplate ampere rating. If in doubt, use the next heavier gage. The smaller the gage number, the heavier the cord.

TABLE 1 MINIMUM GAGE FOR CORD SETS

			Total Length of Cord in Feet			
			0 – 25	26 – 50	51 – 100	101 – 150
Ampere Rating More Than	Not More Than		A W G			
0	–	6	18	16	16	14
6	–	10	18	16	14	12
10	–	12	16	16	14	12
12	–	16	14	12	Not Recommended	

17. **OUTDOOR USE EXTENSION CORDS.** When tool is used outdoors, use only extension cords intended for use outdoors and so marked.
18. **STAY ALERT.** Watch what you are doing, use common sense. Don't operate tool when you are tired.
19. **CHECK DAMAGED PARTS.** Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced by an authorized service center unless otherwise indicated elsewhere in this instruction manual. Have defective switches replaced by authorized service center. Don't use tool if switch does not turn it on and off.
20. **GUARD AGAINST ELECTRIC SHOCK.** Prevent body contact with grounded surfaces. For example; pipes, radiators, ranges, refrigerator enclosures.
21. **REPLACEMENT PARTS.** When servicing, use only identical replacement parts.
22. **POLARIZED PLUGS.** To reduce the risk of electric shock, this equipment has a polarized plug (one blade is wider than the other). This plug will fit in a polarized outlet only one way. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician to install the proper outlet. Do not change the plug in any way.

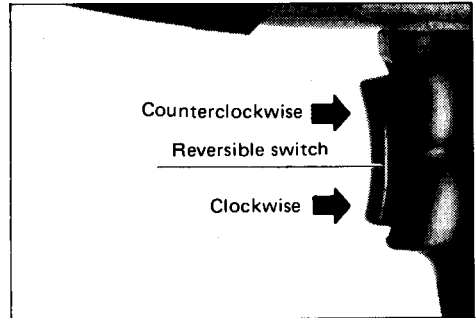
VOLTAGE WARNING: Before connecting the tool to a power source (receptacle, outlet, etc.) be sure the voltage supplied is the same as that specified on the nameplate of the tool. A power source with voltage greater than that specified for the tool can result in **SERIOUS INJURY** to the user — as well as damage to the tool. If in doubt, **DO NOT PLUG IN THE TOOL**. Using a power source with voltage less than the nameplate rating is harmful to the motor.

SAVE THESE INSTRUCTIONS.

How to use

• Switch operation

The switch is reversible, providing either clockwise or counterclockwise rotation. Pulling the lower part of the trigger puts the wrench on in the clockwise direction. Pulling the upper part of the trigger puts the tool on in the counterclockwise direction. Simply releasing either end of the trigger turns the tool off.



Warning: It is dangerous and injurious to the tool to reverse the rotation by rapid switching without waiting for the motor to stop. Put the tool off, then wait for complete stop before switching direction of rotation.

• Attaching the socket

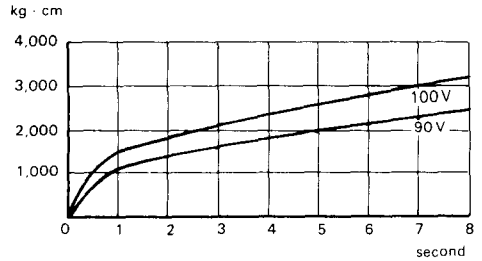
Selecting a proper socket in size, please insert it into the anvil so as to fix securely.



Notes on tightening operations

• Check your local voltage

Using a power source with ten percent less than the nameplate voltage will cause a sharp drop in tightening torque. Check your voltage when using an extension cord.



• Socket selection and installing capacity

Use the right size socket for bolts and nuts.

A different size socket will result in poor tightening torque.

Socket Size (Across hex flats)	Metric Screws (ISO)	Inch Screws
17	10 mm	3/8"
19	12 mm	7/16"
21	—	1/2"
22	14 mm	—
23	—	9/16"
24	16 mm	—
26	—	5/8"

• Tightening time in terms of the kind/size of bolt

Tightening torque increases with time and varies with the kind and size of bolt.

Tightening a small-diameter bolt too long can ruin it. Fasten, keeping in mind your bolt — Do not tighten too long or too short.

• Check bolt or nut for looseness

A loose bolt or nut will merely spin and the proper torque will not be possible. If the socket keeps spinning, stop and check the bolt or nut for looseness.

• Manner of holding wrench affects performance

Grip the handle and side grip lightly, keeping the wrench pointed straight at the nut or bolt. Be careful not to tip the tool at an angle or place the weight of the tool on the socket. This can markedly reduce the tightening torque. Do not apply undue pressure on a nut or bolt with the tool itself.

Factors affecting tightening torque

1. Voltage

A drop in voltage causes a reduction in motor speed, the force and number of impacts, and tightening torque.

2. Tightening time

* The tightening time affects the number of impacts. Thus, the torque increases with time of tightening.

* Long tightening eventually means no more increase in tightening torque, since the tool hammer's tightening force and the force of the bolt or nut cancel each other out.

3. Socket

- * Failure to use the correct socket size will result in torque that is not even.
- * Stable torque is not possible with a worn socket (wear on the hex end or anvil square end).

4. Different torque even with the same diameter bolt

- * The proper tightening torque differs (even for a bolt of the same diameter) in terms of the torque coefficient: screw effective diameter, wear angle, lead angle, average diameter of nut surface and the wear coefficient on the nut surface.
- * The type (class) bolt makes for a different tightening torque.
- * The time for tightening varies in terms of bolt length.
- * The torque differs in terms of installation place also.
- * The manner of holding the tool will affect the torque.

5. Bolts of different diameters

Even though the torque coefficient and class of bolt are the same, the torque will vary with bolts of different diameters.

6. Torque measuring method

The tightening torque will even differ depending on the way of measuring it.

7. Use of accessories

The use of the extension bar somewhat reduces the tightening force of the impact wrench. Compensate by tightening for a longer time.

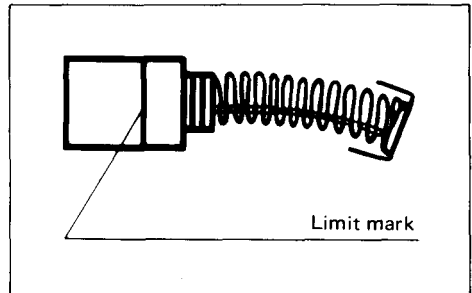
MAINTENANCE

CAUTION:

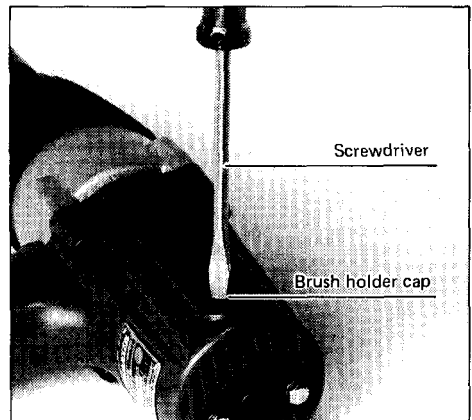
Always be sure that the tool is switched off and unplugged before attempting to perform inspection or maintenance.

Replacing carbon brushes

Remove and check the carbon brushes regularly. Replace when they wear down to the limit mark. Keep the carbon brushes clean and free to slip in the holders. Both carbon brushes should be replaced at the same time. Use only identical carbon brushes.



Use a screwdriver to remove the brush holder caps. Take out the worn carbon brushes, insert the new ones and secure the brush holder caps.



To maintain product SAFETY and RELIABILITY, repairs, any other maintenance or adjustment should be performed by Makita Authorized or Factory Service Centers, always using Makita replacement parts.

ACCESSORIES

CAUTION:

These accessories or attachments are recommended for use with your Makita tool specified in this manual. The use of any other accessories or attachments might present a risk of injury to persons. The accessories or attachments should be used only in the proper and intended manner.

- **Extension bar** (Part No. 785201-8)

Recommended for work in tight places, where footing is poor or in spots where the conventional socket will not reach.

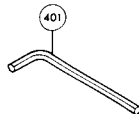
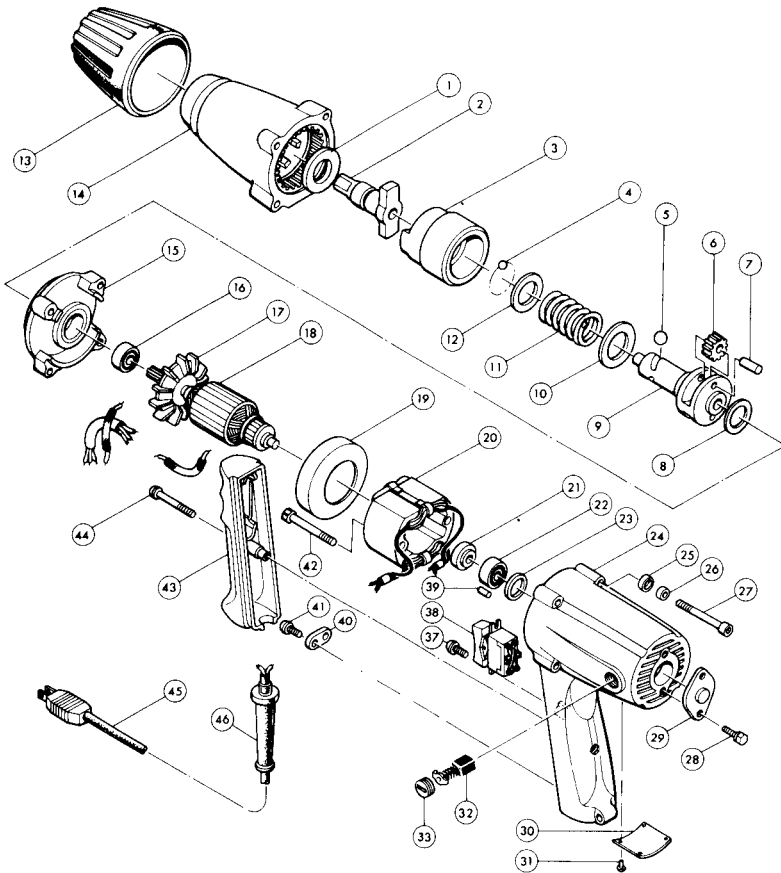


- **Universal joint** (Part No. 785205-0)

This accessory is useful in a limited space where the machine cannot be held in line with the axis of the bolt or nut.



12.7 mm (1/2") IMPACT WRENCH Model 6905B



ITEM NO.	NO. USED	DESCRIPTION	ITEM NO.	NO. USED	DESCRIPTION
<u>MACHINE</u>			<u>MACHINE</u>		
1	1	F. Washer 18	24	1	Motor Housing (With Brush Holder x 2 & S. Screw M5x8 x 2)
2	1	Anvil	25	4	Cup Washer 5
3	1	Hammer	26	4	Ring 5
4	20	Steel Ball 4	27	4	H. S. H. Bolt M5x50
5	2	Steel Ball 6.4	28	2	H. Bolt M5x18 (With Washer)
6	2	Spur Gear 33	29	1	Bearing Cover 34
7	2	Pin 6	30	1	Name Plate
8	1	F. Washer 18	31	4	Rivet 0-5
9	1	Spindle	32	2	Carbon Brush
10	1	F. Washer 24	33	2	Brush Holder Cap
11	1	Compression Spring 24	37	1	P. H. Screw M4x8 (With Washer)
12	1	F. Washer 22	38	1	Switch
13	1	Bumper	39	1	Rubber Pin 4
14	1	Hammer Case	40	1	Strain Relief
15	1	Bearing Housing	41	2	P. H. Screw M4x18 (With Washer)
16	1	Ball Bearing 608LLB	42	2	H. Bolt M4x50 (With Washer)
17	1	Fan 62	43	1	Handle Cover
18	1	ARMATURE ASSEMBLY (Assembled Items 16 - 18, 21 & 22)	44	1	P. H. Screw M4x40 (With Washer)
19	1	Baffle Plate	45	1	CORD ASSEMBLY (Assembled Cord, Plug & Cord Guard)
20	1	Field	46	1	Cord Guard
21	1	Insulation Washer	<u>ACCESSORY</u>		
22	1	Ball Bearing 627LLB	401	1	H. Wrench 4
23	1	Ring 18			



MAKITA LIMITED ONE YEAR WARRANTY

Warranty Policy

Every Makita tool is thoroughly inspected and tested before leaving the factory. It is warranted to be free of defects from workmanship and materials for the period of ONE YEAR from the date of original purchase. Should any trouble develop during this one-year period, return the COMPLETE tool, freight prepaid, to one of Makita's Factory or Authorized Service Centers. If inspection shows the trouble is caused by defective workmanship or material, Makita will repair (or at our option, replace) without charge.

This Warranty does not apply where:

- repairs have been made or attempted by others;
- repairs are required because of *normal wear and tear*;
- The tool has been abused, misused or improperly maintained;
- alterations have been made to the tool.

IN NO EVENT SHALL MAKITA BE LIABLE FOR ANY INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES FROM THE SALE OR USE OF THE PRODUCT. THIS DISCLAIMER APPLIES BOTH DURING AND AFTER THE TERM OF THIS WARRANTY.

MAKITA DISCLAIMS LIABILITY FOR ANY IMPLIED WARRANTIES, INCLUDING IMPLIED WARRANTIES OF "MERCHANTABILITY" AND "FITNESS FOR A SPECIFIC PURPOSE," AFTER THE ONE-YEAR TERM OF THIS WARRANTY.

This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. Some states do not allow limitation on how long an implied warranty lasts, so the above limitation may not apply to you.

Makita Corporation

3-11-8, Sumiyoshi-cho,
Anjo, Aichi 446 Japan

883054B062

PRINTED IN JAPAN
1995 - 4 - N